

Application No. 10/575,388
Reply to Final Office Action dated 08/16/2011

REMARKS

Applicant respectfully requests favorable reconsideration and reexamination of this application. Claims 1 has been revised to include features of previous claim 5, with editorial revisions. Claim 5 has been canceled accordingly. Claims 6-9 have been revised to depend from claim 1, instead of claim 5. Claim 10 has been revised to include the features of previous claim 1, with additional revisions. Claim 16 has been revised to include features of claim 5, with additional revisions. Claim 17 has been revised to avoid inconsistency with claim 16. New independent claim 20 has been added to include features of claims 16 and 10, with additional features. New dependent claim 21 has been added. Support for the revisions can be found at, e.g., page 17, the second full paragraph of the specification, among other places. Claim 19 has been canceled without prejudice. Claims 1, 3-4, 6-17 and 20-21 are pending in the application.

Claims 1, 3, 16, 17 and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958). Independent claims 1 and 16 have been revised to include features of claim 5; thus, claims 1 and 16, and their respective dependent claims 3 and 17 are no longer subject to this rejection. Claim 19 has been canceled without prejudice.

Claim 5 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) in view of Watanabe (U.S. Published Patent Application No. 2001/0028316), Gossner (U.S. Patent No. 2,574,967) and Davis (U.S. Published Patent Application No. 2004/0007032). Applicant respectfully traverses this rejection.

Claim 1 requires a signal device for producing combination input information and for converting the information into two groups of electrical pulse signals, where the signal device includes a panel body, a rotatable dial installed on the panel body, a drive shaft located at a center of the dial, a set of driving gears installed on the drive shaft, a driven gear engaged with the driving gears, and a rotating coder coupled with the driven gear on the drive shaft. This feature allows the electronic combination lock to work without use of a step motor.

Miller et al. fail to teach or suggest a signal device for producing combination input information and for converting the information into two groups of electrical pulse signals, where the signal device includes a panel body, a rotatable dial installed on the panel body, a drive shaft located at a center of the dial, a set of driving gears installed on the drive shaft, a driven gear

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engaged with the driving gears, and a rotating coder coupled with the driven gear on the drive shaft, as required by claim 1. Instead, Miller et al. merely discuss "a dial 14 connected to a rotor 24" (see Miller et al., col. 7, lines 34-51 and Fig. 1) and "two phase lines 38 and 40 used to determine the direction of the rotation of the rotor 28" (see Miller et al., col. 7, lines 45-50). Miller et al. also discuss that the magnetic fields of the magnetic segments 32 extends to and interacts with the coils 34 which are placed in proximity to the rotor 28 to generate a pulse of electricity and that the generator 29 may be a stepper motor (an alternative name of step motor) driven as a generator (see Miller et al., col. 7, lines 34-43). Miller further discuss that as the rotor 28 is rotated by the dial 14 and shaft 20, a series of pulses are generated which are fed to the power control and pulse shaping device 36. The pulses are then fed to the microprocessor 44 over the two phase lines 38 and 40 (see Miller et al., col. 7, lines 34-51 and Fig. 1). It can be seen that the signal device of Miller uses a rotating dial coupled to a stepper motor. Use of the stepper motor will cause increase of the cost and increase of peripheral circuit complexity. For example, a shaping circuit typically has to be used with a step motor. Therefore a manufacturing cost of the electronic digital lock in Miller et al. is relatively higher. Use of the rotating coder as required in claim 1 will help significantly reduce the cost for manufacturing the lock.

Although the signal device of claim 1 and Miller et al. can both produce combination input information and convert the information into two groups of electrical pulse signals, their principles and structures to be adopted are quite different from each other. The fact that Miller et al. has to use a stepper motor but claim 1 does not use a step motor should not be ignored. From the structure the signal device of claim 1, which has a panel body, a rotatable dial installed on the panel body, a drive shaft located at a center of the dial, a set of driving gears installed on the drive shaft, a driven gear engaged with s the driving gears, and a rotating coder coupled with the driven gear on the drive shaft, it will be clear to one skilled in the art that a step motor and a shaping circuit will not be required for the invention of claim 1.

The rejection contends that the above difference is immaterial to the patentability of the claim, especially if the Applicant's stated advantages are not part of the claim. However, the signal device in Miller et al. use both a step motor and a shaping circuit, while the signal device of claim 1 uses a panel body, a dial which is installed on the panel body and can be rotated freely, a drive shaft located at the center of the dial, a set of

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driving gears installed on the drive shaft, a driven gear which engages with the driving gears, and a rotating coder coupled with the driven gear on the same shaft. One skilled in the art would understand that the structure of the present signal device allows removal of the step motor and the shaping circuit from the signal device.

The fact the claim 1 requires a panel body, a rotatable dial installed on the panel body, a drive shaft located at a center of the dial, a set of driving gears installed on the drive shaft, a driven gear which engages with the driving gears, and a rotating coder coupled with the driven gear on the drive shaft indicates that the signal device of claim 1 in fact does not use a step motor and a shaping circuit. As a result, the technical problems, e.g., "the step motor generates electrical signals, the signals being outputted to a microcomputer for counting process via a shaping circuit and being displayed by a display device. Since the structure of the step motor is complicated and the price is rather high, and the peripheral circuits, such as the shaping circuit, and the like, are required, therefore the manufacturing cost of such electronic digital lock is relatively high" (see, e.g., the paragraph bridging pages 1 and 2 of the present specification, among other places; emphasis added). That is, claim 1 helps resolve the problems caused by use of a step motor and a shaping circuit as in Miller et al. As a result, the structure of the signal device can be simple and the manufacturing cost can be reduced.

Claim 1 also requires a measurement and control device for not only deciding the order of the electrical pulse signals and calculating correspondingly such that the signals are converted into character sequences including the combination elements, but also deciding whether the current combination elements are confirmed to be inputted or not and deciding whether the input of all the combination elements is completed or not. Claim 1 further requires a confirmation device to be a switch device, where an electrical signal produced when the confirmation device is closed allows the measurement and control device to confirm the current combination element displayed by the display device as a part of the input combination.

Nor do Miller et al. teach or suggest a confirmation device to be a switch device, where an electrical signal produced when the confirmation device is closed allows the measurement and control device to confirm the current combination element displayed by the display device as a part of the input combination, as required by claim 1. In claim 1, what is confirmed is the input for each single combination element as underlined for emphasizing, rather than a

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complete combination consisting of all the combination elements. In fact, the present confirmation device is a switch device, where an electrical signal produced when it is closed allows the measurement and control device to confirm the current combination element displayed by the display device as a part of the input combination of claim 1.

Instead, Miller et al. merely discuss the answer to operation 404 in Fig.10, where a check is made as to whether all numbers of the combination have been entered and if the result is negative, the flow branches back to just prior to operation 402, with the acceptance of the remaining numbers of the combination (see Miller et al., col. 18, lines 1-5). In fact, the operation 404 in Miller et al. is used for checking or confirming whether all numbers of the combination have been entered, rather than whether the current number is input as a part of the combination as required by claim 1.

The rejection contends that "Miller, col. 10, lines 62-67, col. 11, lines 1-67, and col. 12, lines 1-56 recite an electronic combination lock in which at least two sets of combinations are used to enable the combination lock". However, this discuss is completely silent as to the input of the current combination element is confirmed as required by claim 1.

Moreover, claim 1 requires a device in which two types of content to be decided by the measurement and control device, i.e., deciding whether the current combination elements are confirmed to be inputted or not and deciding whether the input of all the combination elements is completed or not. Miller et al. do not teach or suggest a device that decides the above two contents. In fact, the Miller et al. operation 404 only helps decide whether the input of all the combination elements is completed or not, while being completely silent as to a device in which whether the current combination elements are confirmed to be inputted or not is decided.

Further, Miller does not even suggest a device in which an electrical signal produced when it is closed allows the measurement and control device to confirm the current combination element displayed by the display device as a part of a final input combination, as required by claim 1. In fact, nowhere in Miller et al. has provided any suggestions that one of skill in the art will modify Miller et al. to arrive at the invention of claim 1, which requires current combination element displayed by the display device as a part of a final input combination be confirmed. Miller et al. are distinct from the invention of claim 1, which requires a device to confirm

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the current combination element displayed by the display device as a part of the input combination.

For at least these reasons, claim 1 is patentable over Miller et al., Watanabe, Gossner and Davis. Watanabe, Gossner and Davis do not remedy the deficiencies of Miller et al. Claim 3 depends from claim 1 and is patentable along with claim 1 and need not be separately distinguished at this time. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claims.

Claim 16 requires receiving rotation information of a dial via a signal device and converting it into two groups of electric pulse signals, said signal device comprising: a panel body, a rotatable dial installed on said panel body, a drive shaft located at a center of said dial, a set of driving gears installed on said drive shaft, a driven gear engaged with said driving gears, and a rotating coder coupled with said driven gear on the drive shaft. Claim 16 further requires a process in which when the input of the current combination element is confirmed, a confirmation signal for inputting the combination element is produced by a photoelectric switch, wherein an electrical signal produced by said photoelectric switch when being closed allows the microcontroller to confirm the current combination element displayed by said information display screen as a part of the input combination. Claim 16 is patentable for reasons similar to those discussed above regarding claim 1. Claim 17 depends from claim 16 and is patentable along with claim 16 and need not be separately distinguished at this time. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claims.

Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) in view of Watanabe (U.S. Published Patent Application No. 2001/0028316), Gossner (U.S. Patent No. 2,574,967) and Davis (U.S. Published Patent Application No. 2004/0007032) and Hyatt, Jr. (U.S. Patent No. 5,604,489). Applicant respectfully traverses this rejection. Claims 6 and 9 depend from claim 1 and are patentable over Miller et al., Watanabe, Gossner, Davis and Hyatt, Jr. for at least the same reasons discussed above regarding claim 1. Hyatt, Jr. does not remedy the deficiencies of Miller et al., Watanabe, Gossner and Davis. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claims.

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Claim 4 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Rossow et al. (U.S. Published Patent Application No. 2002/0087245), and Laurie (U.S. Published Patent Application No. 2002/0157437) and Hyatt, Jr. (U.S. Patent No. 5,604,489). Applicant respectfully traverses this rejection. Claim 4 depends from claim 1 and is patentable over Miller et al., Rossow et al., Laurie and Hyatt, Jr. for at least the same reasons discussed above regarding claims 1 and 3. Rossow et al., Laurie and Hyatt, Jr. do not remedy the deficiencies of Miller et al. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claim.

Claim 7 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Gartner (U.S. Patent No. 6,738,344), Nelson (U.S. Patent No. 4,942,329), Greenheck (U.S. Patent No. 6,547,289) and Flory et al. (U.S. Published Patent Application No. 2004/0182120). Applicant respectfully traverses this rejection. Claim 7 depends from claim 1 and is patentable over Miller et al., Gartner, Nelson, Greenheck and Flory et al. for at least the same reasons discussed above regarding claims 1 and 3. Gartner, Nelson, Greenheck and Flory et al. do not remedy the deficiencies of Miller et al. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claim.

Claim 8 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Watanabe (U.S. Published Patent Application No. 2001/0028316) and Gossner (U.S. Patent No. 2,574,967) and Davis (U.S. Published Patent Application No. 2004/0007032) and Hyatt, Jr. (U.S. Patent No. 5,604,489). Applicant respectfully traverses this rejection. Claim 8 depends from claim 1 and is patentable over Miller et al., Watanabe, Gossner, Davis and Hyatt, Jr. for at least the same reasons discussed above regarding claims 1 and 3. Hyatt, Jr. does not remedy the deficiencies of Miller et al., Watanabe, Gossner and Davis. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claim.

Claim 10 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Aquilar et al. (U.S. Published Patent Application No. 2001/0004584). Applicant respectfully traverses this rejection. Claim 10 has been revised to include the features

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of previous claim 1, with additional revisions. Claim 10, which includes similar limitations concerning the input device, is patentable over Miller et al. and Aquilar et al. for the reason as discussed with regard to claim 1. Aquilar et al. do not remedy the deficiencies of Miller et al.

Claim 11 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Aquilar et al. (U.S. Published Patent Application No. 2001/0004584) and Hyatt, Jr. (U.S. Patent No. 5,604,489). Applicant respectfully traverses this rejection. Claim 11 depends from claim 10 and is patentable over Miller et al., Aquilar et al. and Hyatt, Jr. for at least the same reasons discussed above regarding claim 10. Hyatt, Jr. does not remedy the deficiencies of Miller et al. and Aquilar et al. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claim.

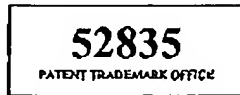
Claims 12, 13 and 14 are rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Aquilar et al. (U.S. Published Patent Application No. 2001/0004584) and Gartner (U.S. Patent No. 6,738,344). Applicant respectfully traverses this rejection. Claims 12 and 13 depend from claim 10 and are patentable over Miller et al., Aquilar et al. and Gartner for at least the same reasons discussed above regarding claim 10. Gartner does not remedy the deficiencies of Miller et al. and Aquilar et al. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claims.

Claim 15 is rejected under 35 U.S.C. 103(a) as being obvious over Miller et al. (U.S. Patent No. 6,420,958) over Aquilar et al. (U.S. Published Patent Application No. 2001/0004584) and Gartner (U.S. Patent No. 6,738,344) and Remington et al. (U.S. Patent No. 4,495,540). Applicant respectfully traverses this rejection. Claim 15 depends from claim 10 and is patentable over Miller et al., Aquilar et al., Gartner and Remington et al. for at least the same reasons discussed above regarding claim 10. Gartner and Remington et al. do not remedy the deficiencies of Miller et al. and Aquilar et al. Applicant is not conceding the relevance of the rejection to the remaining features of the rejected claim.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration and reexamination are requested. Allowance of claims 1, 3, 4, 6-17 and 20-21

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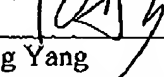
at an early date is solicited. Any questions regarding this communication can be directed to the undersigned attorney, Rong Yang, Limited Recognition. No. L0279 at (612) 455-3816.



Respectfully submitted,

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